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In 81
100

FOREST CONTROL

by

CONTINUOUS INVENTORY

"Today I have grown taller from walking
with the trees."

...Karle Wilson

Milwaukee, Wis. July, 1962 No. 100

"Since 1958, the Bureau of Indian Affairs has initiated seven permanent Continuous Forest Inventory projects in Minnesota and Wisconsin. Five of these have installation, first measurement and data compilation completed, and two are now in the process of installation and first measurement. Two additional projects are scheduled to begin this fall. The five completed areas total 507,425 acres, with the four yet to be completed adding 241,748 acres to place a total of 749,210 acres under continuous forest inventory control. In addition, condition class analysis is being used to guide management practices on similar adjoining or interspersed parcels of land of special ownership status where similar condition classes are encountered.

James E. Hawkins
Area Director
U. S. B. I. A.
Minneapolis, Minnesota"

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SUMMING UP SEASONAL CFI REMEASUREMENTS

THE ACCOMPLISHMENTS OF 1961

Last year 3000 permanent inventory plots were remeasured in Region 9. Five major forest landowners were very busy with this work.

All sample plots were located by mechanical distribution methods over 1,063,000 acres of northern Lake States forest land.

There were 2500 seventh-acre plots and 500 fifth-acre plots, all of which had fixed radii. Completed at the rate of 2.5 to 2.9 plots per two-man crew day, these records span 3, 4, or 5-year growth periods.

Thirty-five men were employed 3 to 6 months to measure and tally the 75,000 individual trees on these plots. All records were made by Port-a-Punch or mark sensing. There was no note transcription in the office. The cards went directly to the machines for reproducing, computation and compilation.

There were at the rate of 21 to 25 trees per seventh-acre plot. All trees 4.96" in DBH and larger were tallied. Expanded to total forest area, the trees in this sample are representative of over 100 million trees.

Five timber companies have learned much about their forest from these trees.

TO BE ACCOMPLISHED IN 1962

This year 2800 permanent inventory plots will be remeasured in Region 9. Again 5 forest landowners are involved. This year's work is located in Missouri and the northern Lake States. Field record cards will begin to pour in late in July.

There are 2200 fifth-acre and 600 seventh-acre plots to be remeasured. All of these plots are mechanically located over 750,000 acres of forest land.

Growth periods on all projects are 5 years in length. With the completion of the last sample late in November, or early in May, 1963, there will again be a growth and mortality record representative of more than 100 million trees over 4.96 inches in DBH.

But this alone is not the important point. The important point is that here again we are given the opportunity to measure progression or retrogression in forest practice and timber management. Five more industrial companies are subjecting their holdings to continuous, scientific scrutiny. These companies will learn much about their forests from this timber accounting.

CAL STOTT
Forester

OWENS-ILLINOIS GLASS COMPANY OF WISCONSIN437 PLOTS ON 170,758 ACRESONE-SEVENTH ACRE PLOTSSITE OF PROJECT
Fall, 1961REMEASUREMENT PROBLEMS AND THEIR SOLUTION

Total trees	9,851	<u>Mislocated 4 plots. Two on other ownership.</u> <u>Missed 5 trees. Original dimensions assumed.</u> <u>Plots in cutting areas properly cut over.</u> <u>Error cards few; mostly mistakes in length.</u> <u>Will change white to blue for lines to plots.</u> <u>Kind of mortality often difficult to decide.</u> <u>All plots found but troublesome on disced land.</u> <u>Mark sense errors on 25 cards; 4 taken to woods</u> <u>for correction. Port-a-Punch possible next time.</u> <u>Trees nail tagged at measurement 1, and 10% of</u> <u>nails grown over. Pulled nails and painted</u> <u>numbers within 367 plots in 1961.</u> <u>No difficulty with telescopic, plexiglass pole</u> <u>for lengths. Used U-gauge at Meas. #2 only.</u> <u>Tree location by number not troublesome.</u> <u>Ingrowth and missed trees sometimes confused.</u>
Total plots	437	
The old plots	391	
The new plots	46	
Acres per plot	391	
Trees per plot	23	
The number of men	4	
Number of crews	2	
Overall working days	75	
Plots taken per day	2.9	
Years in growth period	3	
Plots at each station	1	

GENERAL COMMENT ON USE OF CFI RESULTSFIRST REMEASUREMENT

Owens-Illinois Glass completed most of the standard CFI tables considered essential to intensified and improved forest management and inventory control. There are detailed tabulations of allowable and recommended cut for use in the preparation of a safe cutting budget. Deer damage records from the plots have been compiled for study. Present and past volumes of all hardwood and conifer species have been tabulated. Periodic growth and growth percent values have been made available, and cover, size and density class changes are now a matter of record. From the plots and other information, a management plan will be completed for the whole forest this spring.

Checks and observations on this project in the woods indicated that very careful work was done on all measurements. Periodic remeasurements are planned at 5 to 10-year intervals.

Data processing, handled in the main office of the company, might better be completed locally in order that the foresters may become better acquainted with machine methods, and details of the data. Localizing calculations is always helpful. It reduces delays in the completion of machine work.

CAL STOTT
Forester

KIMBERLY-CLARK CORPORATION -- MICHIGAN, MINNESOTA AND WISCONSIN788 PLOTS ON 250,063 ACRESONE-SEVENTH ACRE PLOTSSIZE OF CFI PROJECT
FALL 1961

Total trees	19,354
Total plots	788
The old plots	735
The new plots	53
Acres per plot	320
Trees per plot	25
The number of men	18
Number of crews	9
Experienced men	5
Inexperienced men	13
Forest school men	9
Overall working days	35
Plots estab. per day	2.1
Plots remeas. per day	2.5
Years in growth period	5
Plots in each station	2

REMEASUREMENT PROBLEMS AND THEIR SOLUTION

Mislocated 8 plots. Relocated as new plots.
Missed 28 trees. Original dimensions assumed.
One plot not cut over in clear cut area.
Card errors occasional. All corrected.
More paint needed on lines to plot stations.
Kind of mortality often difficult to decide.
A few plots hard to find but all recovered.
Port-a-Punch favored over mark sensing but
prescored chips to be punched out clean.
Outside white paint numbers lost on a few
fast-growing paper birch. Otherwise good.
Bamboo poles favored as guides to length
but a few men rebelled against pole use.
Difficult to distinguish between cord-
wood ingrowth trees and missed trees.
Relocating original paint numbered trees
was not difficult.
Field error correction was not troublesome.
Mistakes were red penciled and an error code
punched. Red patches used on back of cards.

GENERAL COMMENT ON USE OF CFI RESULTS
FIRST REMEASUREMENT

Kimberly-Clark has a total of 1,714 one-seventh acre plots, of which 788 were remeasured in 1961. The CFI inventories are being used in many ways. The system has historical values and planning advantages. It provides informative facts for the solution of current woods and plant problems. CFI data are now being studied to determine allowable cut by species and district. Policy statements and management plans will soon be prepared from the remeasurement figures. Total valuation of timber, forest lands and forest growth are being compiled. Overall planting acreage, and forest tree nursery capacity will be partially decided from the CFI records. Special studies of aspen tree quality and size have been made for management.

Company jobbers followed directions in all but one case, cutting over CFI plots without bias or prejudice. One jobber, before logging within the plots, numbered all stumps with a paint brush so the trees could be relocated. In strip roads he cut the trees at ground level, replacing the numbered stumps in their exact location before leaving the area. This helpful cooperation was not required by the company.

CAL STOTT
Forester

KOOCHICHING COUNTY, MINNESOTA504 PLOTS ON 302,130 ACRESONE-SEVENTH ACRE PLOTSSIZE OF PROJECT

Fall, 1961

Total trees	10,732
Total plots	510
The old plots	504
The new plots	6
Acres per plot	591
Trees per plot	21
The number of men	7
The number of crews	3
The experienced men	4
The new trainees	2
One student forester	1
Overall working days	60
Plots taken per day	2.9
Years in growth period	4
Plots at each station	2

Mislocated 6 plots. Ownership records in error. Missed 18 trees. Original dimensions assumed. Two plots not cut over within clear cut area. Will be cut in 1962.

Obvious errors not numerous. All corrected. All plots found. Two days' search in several cases.

Bearing and distance errors to plots occasionally.

Good success with mark sensing. Few errors. Several different paints were used. Most numbers readable but many weak. All trees renumbered with Nelson white in 1961.

Lengths on ingrowth and new plot trees taken with Haga. Some pole checks. No U-gauge used. Lengths not repeated on original trees.

Tree location by number somewhat difficult due to crown spray enamel used in part at Meas. 1.

No difficulties reported on mortality kind or distinction between missed trees and ingrowth.

GENERAL COMMENT ON USE OF CFI RESULTSFIRST REMEASUREMENT

The Koochiching County foresters completed their data processing in January, 1962. A forest management plan was prepared in February and it is anticipated that the records will have some application in the accounting system as time goes on. To date the information for broad forest areas has been used for business development promotion, tax studies, and it will be helpful in solving current forest problems. Broad operational breakdowns of the forest have been recognized in the data compilation.

This inventory was made to conform in most respects to that of the Mando Paper Company. The forest lands are intermingled, and the forest products have the same general outlets. These multiple ownership inventories are economically established and useful to all concerned. They should be encouraged in all forest regions.

CAL STOTT
Forester